

Claims

- [c1] 1.A hybrid x-ray detector comprising:
a first detector that is adapted to receive x-rays, said first detector absorbs a first portion of said x-rays and allows a second portion of said x-rays to pass through said first detector; and
a second detector that is adapted to receive said second portion of said x-rays.
- [c2] 2.The detector of claim 1, wherein said first detector is an energy integrating detector and said second detector is an energy discriminating detector.
- [c3] 3.The detector of claim 2, wherein said first detector is one of a scintillator detector coupled to a light sensitive element and a direct conversion detector.
- [c4] 4.The detector of claim 2, wherein said second detector is one of a scintillator detector coupled to a light sensitive element and a direct conversion detector.
- [c5] 5.The detector of claim 2, wherein said second detector is smaller than said first detector.
- [c6] 6.The detector of claim 2, wherein said first detector is

thinner in an area that is not larger than said second detector.

[c7] 7.The detector of claim 1, wherein said first detector is an energy discriminating detector and said second detector is an energy integrating detector.

[c8] 8.The detector of claim 1, wherein said first detector is disposed adjacent to said second detector.

[c9] 9.The detector of claim 1, wherein said first detector is fabricated on a substrate having a transmission of at least 80% of said first portion of said x-rays.

[c10] 10.A radiation imaging system comprising:
an x-ray source that produces x-rays; and
an image detector assembly that is adapted to receive said x-rays, said image detector assembly having a hybrid x-ray detector that includes:
a first detector that is adapted to receive said x-rays, said first detector absorbs a first portion of said x-rays and allows a second portion of said x-rays to pass through said first detector;
a second detector that is adapted to receive said second portion of said x-rays.

[c11] 11.The system of claim 10, further comprising a processor that receives data from said first detector and said

second detector.

- [c12] 12.The system of claim 11, wherein said processor analyzes said data to produce at least one image.
- [c13] 13.The system of claim 12, further comprising an analysis of said at least one image to produce an analyzed image.
- [c14] 14.The system of claim 11, further comprising a display in communication with said processor.
- [c15] 15.The system of claim 10, wherein said first detector is an energy integrating detector and said second detector is an energy discriminating detector.
- [c16] 16.The detector of claim 15, wherein said first detector is one of a scintillator detector coupled to a light sensitive element and a direct conversion detector.
- [c17] 17.The detector of claim 15, wherein said second detector is one of a scintillator detector coupled to a light sensitive element and a direct conversion detector.
- [c18] 18.The system of claim 15, wherein said second detector is smaller than said first detector.
- [c19] 19.The system of claim 15, wherein said first detector is thinner in an area that is not larger than said second de-

tector.

- [c20] 20.The system of claim 10, wherein said first detector is an energy discriminating detector and said second detector is an energy integrating detector.
- [c21] 21.A method of operating a hybrid x-ray detector, the method comprising:
 - receiving x-rays at a first detector;
 - absorbing a first portion of said x-rays;
 - passing a second portion of said x-rays through said first detector; and
 - receiving said second portion of said x-rays at a second detector.
- [c22] 22.The method of claim 21, further comprising producing an image.
- [c23] 23.The method of claim 22, further comprising analyzing said image.
- [c24] 24.The method of claim 23, further comprising producing an analyzed image.
- [c25] 25.The method of claim 22, further comprising displaying said image.
- [c26] 26.The method of claim 23, further comprising displaying said analyzed image.

